

WHAT IS CLAIMED IS:

1. A solid state image sensor, comprising a plurality of transducer column groups, each of which is composed of a first photoelectric transducer column wherein a plurality of photoelectric transducers are disposed at given intervals in a given direction, and a second photoelectric transducer column wherein a plurality of photoelectric transducers are disposed at said given intervals in the said direction, the second column being disposed so as to be shifted from the first column by a given amount in said given direction,

wherein transfer registers are disposed between the respective photoelectric transducer columns so as to invade spaces between the respective photoelectric transducers in the photoelectric transducers columns adjacent to each other and so as not to contact each other,

the solid state image sensor further comprising a plurality of monolayer electrodes which pass between the photoelectric transducers and extend in a direction that intersects said given direction, and which are disposed so as to be a given distance apart from each other in such a manner that signal charges generated in the photoelectric transducers are transferred along the transfer registers.

2. A solid state image sensor according to claim 1, wherein the spacing between the monolayer electrodes above the transfer registers is made narrower than the spacing between the monolayer electrodes above isolation regions for electrically isolating the transfer registers adjacent to each other.

3. A solid state image sensor according to claim 1, wherein the spacing between the monolayer electrodes above the transfer registers is formed in a linear configuration, from one side edge of the transfer registers toward the other side edge of said transfer registers.

4. A solid state image sensor according to claim 1, wherein the reflectivity of the monolayer electrodes is lower than that of metal aluminum itself.

5. A solid state image sensor according to claim 1, wherein the monolayer electrodes are made of any one electrode material selected from the group consisting of low-resistance polysilicon, tungsten, molybdenum, tungsten silicide, molybdenum silicide, titanium silicide, tantalum silicide and copper silicide.

6. A solid state image sensor according to claim 1, wherein the monolayer electrodes are formed by stacking

a plurality of electrode materials.

7. A solid state image sensor, wherein a plurality of photoelectric transducer columns having a plurality of photoelectric transducers disposed in a given direction at given intervals, are arranged in parallel, and transfer registers are disposed between the respective photoelectric transducer columns,

the solid state image sensor further comprising a plurality of monolayer electrodes which pass between the photoelectric transducers and extend in a direction that intersects the given direction, and which are disposed to sandwich given gaps therebetween in such a manner that signal charges generated in the photoelectric transducers are transferred along the transfer registers, and

a nonconductive light-shielding film formed above the monolayer electrodes and having light-transmitting portions through which light received in light-receiving areas of the photoelectric transducers is transmitted.

8. A solid state image sensor, comprising a plurality of transducer column groups arranged in parallel, each of which is composed of a first photoelectric transducer column wherein a plurality of photoelectric transducers are disposed at given intervals in a given direction,

and a second photoelectric transducer column wherein a plurality of photoelectric transducers are disposed at said given intervals in said given direction, the second column being disposed to be shifted from the first column by a given amount in said given direction,

wherein transfer registers are disposed between the respective photoelectric transducer columns so as to invade spaces between the respective photoelectric transducers in the photoelectric transducers columns adjacent to each other and so as not to contact each other,

the solid state image sensor further comprising a plurality of monolayer electrodes which pass between the photoelectric transducers to extend in a direction which intersects said given direction, and which are disposed to sandwich given gaps therebetween in such a manner that signal charges generated in the photoelectric transducers are transferred along the transfer registers, and

a nonconductive light-shielding film formed above the monolayer electrodes and having light-transmitting portions through which light received in light-receiving areas of the photoelectric transducers is transmitted.

9. A solid state image sensor according to claim 7, wherein light-transmitting portions through which the

light having a given wavelength received in light-receiving areas of the photoelectric transducers is transmitted, and light-shielding portions surrounding the light-transmitting portions are disposed in the same plane of the nonconductive light-shielding film.

10. A solid state image sensor according to claim 8, wherein light-transmitting portions through which the light having a given wavelength received in light-receiving areas of the photoelectric transducers is transmitted, and light-shielding portions surrounding the light-transmitting portions are disposed in the same plane of the nonconductive light-shielding film.

11. A solid state image sensor according to claim 7, wherein a filter layer which transmits light of a given wavelength is formed above or below the nonconductive light-shielding film.

12. A solid state image sensor according to claim 8, wherein a filter layer which transmits light of a given wavelength is formed above or below the nonconductive light-shielding film.

13. A solid state image sensor according to claim 7, wherein all or a part of edge portions of the nonconductive light-shielding film is extended toward

the center of the light-receiving areas of the photoelectric transducers.

14. A solid state image sensor according to claim 8, wherein all or a part of edge portions of the nonconductive light-shielding film is extended toward the center of the light-receiving areas of the photoelectric transducers.

15. A solid state image sensor according to claim 7, wherein the nonconductive light-shielding film is made of a resin material.

16. A solid state image sensor according to claim 8, wherein the nonconductive light-shielding film is made of a resin material.

17. A solid state image sensor according to claim 15, wherein the resin material contains a photosensitive resin or gelatin.

18. A solid state image sensor according to claim 16, wherein the resin material contains a photosensitive resin or gelatin.

19. A solid state image sensor according to claim 15, wherein the resin material is a material wherein a

pigment which absorbs or reflects visible rays is dispersed in a resin, or a material wherein a resin is dyed with a dye which absorbs or reflects visible rays.

20. A solid state image sensor according to claim 16, wherein the resin material is a material wherein a pigment which absorbs or reflects visible rays is dispersed in a resin, or a material wherein a resin is dyed with a dye which absorbs or reflects visible rays.

21. A solid state image sensor according to claim 7, wherein the central positions of the light-transmitting portions are off centered from the central positions of the photoelectric transducers.

22. A solid state image sensor according to claim 8, wherein the central positions of the light-transmitting portions are off centered from the central positions of the photoelectric transducers.

23. A solid state image sensor according to claim 7, wherein the arrangement pitch of central positions of the light-transmitting portions is made smaller than the arrangement pitch of central positions of the photoelectric transducers.

24. A solid state image sensor according to claim 8,

wherein the arrangement pitch of central positions of the light-transmitting portions is made smaller than the arrangement pitch of central positions of the photoelectric transducers.

25. A solid state image sensor according to claim 23, wherein the arrangement pitch of optical axis of microlenses arranged above the light-shielding film is made smaller than the arrangement pitch of central positions of the photoelectric transducers.

26. A solid state image sensor according to claim 24, wherein the arrangement pitch of optical axis of microlenses arranged above the light-shielding film is made smaller than the arrangement pitch of central positions of the photoelectric transducers.

27. A solid state image sensor according to claim 7, wherein the planar shape of the light-transmitting portions is that of a polygon having four sides or more, a circular shape, or an elliptic shape.

28. A solid state image sensor according to claim 8, wherein the planar shape of the light-transmitting portions is that of a polygon having four sides or more, a circular shape, or an elliptic shape.